



Munich Personal RePEc Archive

Challenge of financing physical infrastructure and services in Brihanmumbai municipal corporation

Rode, Sanjay

Somaiya College, Mumbai University, India

20. January 2011

Online at <http://mpra.ub.uni-muenchen.de/30017/>

MPRA Paper No. 30017, posted 01. April 2011 / 18:00

Challenge of Financing Physical Infrastructure and Services in Brihanmumbai Municipal Corporation

Sanjay Rode*

Abstract

Mumbai city is a financial capital of country but at present it is facing acute pressure of rise in population and inadequate infrastructure facilities and services. All the infrastructure facilities are overcrowded and services are not sufficient to present population, commerce and trade purpose. Such facilities are affecting on standard of living of population in city. The revenue sources are increasing for Brihanmumbai Municipal Corporation (BMC) but they are inadequate to finance infrastructure expenditure. The demand of the funds is higher for city environment, institutional reforms, common services and social welfare of population. Municipal Corporation must raise the investment from the capital market through issuing municipal bonds. RBI must either allow commercial banks to provide infrastructure development finance or establish non banking financial institutions for this purpose. Similarly efficient expenditure management, innovative methods of revenue collection will yield better results. BMC must implement public private partnership in maximum infrastructure related projects. It will reduce the debt burden of Municipal Corporation. BMC cannot keep people away from using the municipal corporation services. Services provision at grass-root level is in an important challenge for BMC.

Keywords : Fiscal deficit, Social welfare, Development expenditure

*Dr. Sanjay Rode is working as Assistant Professor in Somaiya college, Mumbai university, Mumbai, Maharashtra, India. This paper is presented in UGC sponsored national conference “Impact of urbanisation in India” 25th January 2011.

Introduction

With increasing population and demand for urban infrastructure services, the capabilities of local governments in many developing and newly industrialised countries are overburdened (Sridhar K.S.2007). Brihanmumbai Municipal Corporation (BMC) is one of the richest municipal corporations in India. It is an engine of economic growth because most of the economic activities are located in corporation area. Therefore Mumbai city has emerged as the financial capital of country. Due to its financial linkages across the world, it has also planned to establish as an important international financial centre. At present, Mumbai city is hub of major financial institutions, media, IT and healthcare. The central offices of major banks and non banking financial institutions are located in Mumbai. The major industrial units in a wide range of industries such as engineering, petrochemical are located in the city. Due to its location advantage to the large business firm, city is providing employment to the skilled and unskilled population. In various sectors such as infrastructure development, up-gradation and construction, wholesale and retail, hotels and in tourism, many people are employed. People attract for employment and business in the city from within and across states. Brihanmumbai Municipal Corporation (BMC) and Government of Maharashtra expect maximum output from labour force. Working population in city is considered as knowledge workers and effective infrastructure facilities increase their productivity in the city.

To be competitive city, Municipal Corporation must build and maintain infrastructure and deliver services that attract skilled individuals and firms. City has not only provide roads transit water , sewerage and other hard services but also services that enhance the quality of life such as parks , libraries and recreational facilities. The pressure to provide both kinds of services is increasing (Kitchen H.M and Slack E. 2003). Modern and efficient infrastructure facilities make life more comfortable in the city. To cope with the city's growth the corporation has to make concerned efforts towards generating resources to finance capital expenditure so as to provide adequate infrastructure to citizens (Sekhar S. and Bidarkar S.1999). But population in the city is continuously growing and the quality of life in the city is continuously declining. The resources which are allotted are not invested on time in different wards. Similarly administrative and technical problems lead to delay in the provision of various municipal services to the city population. People face congestion, delay or unavailability of services in their area. It affects on the time, cost and energy to the population. A common man in city face many problems related to traffic, water supply, sanitation, housing etc. Nearly sixty percent of population is living in various slums. Affordable housing is a dream of poor people in city. Government and Municipal Corporation are neglecting housing issue of poor people on various grounds. Such people do not have access to sanitation facilities. Only the rich and elite class has the sanitation and water supply facilities in the city. Water supply is not regular in most of the slums and it is completely inadequate in the entire city. Population, commercial units, small industrial units are rising but water supply is not sufficient in the city. The deficit is continuously rising for future period. Every day, a common household in urban slum area struggle to get the minimum water (Rode 2008). In city, public and private transportation services are overcrowded. Transportation is not well planned and common man spends hours and hours in traffic jam or in over crowded

transport services. At present, BMC does not have plan to provide efficient, quick and modern transport facility to common man in city. Some private sector transport projects are planned but they are not completed on time. As time passes, the burden on the existing transport system increases. Ultimately, it leads to decline in economic productivity of each individual in city.

Recently, the Government of India has directed all municipalities to earmark a minimum twenty five percent of their funds for ensuring basic services such as affordable housing, water supply, sewage and drainage for the poor living within their jurisdiction. The basic services to the Urban Poor (BSUP) fund will get maintained from municipal budgetary resources like tax, fees, user charges and rent and assigned revenues. Such decision will affect on the expenditure side of the municipal corporation. Brihanmumbai Municipal Corporation (BMC) and Government of Maharashtra (GoM) are trying to increase the revenue sources. But due to global recession and sixth pay commission, the revenue and expenditure pattern of Municipal Corporation has affected. The gap between income and expenditure is continuously increasing for the municipal corporation. Such imbalance has affected on the capital expenditure of Municipal Corporation. Therefore rising population and deteriorating services quality is an important challenge in front of Municipal Corporation.

The major objective of this paper is to examine the mismatch between revenue receipts and expenditure pattern and find the gap in deficit. Secondly examine the trends in expenditure pattern over the period of time and lastly to suggest various policies to reduce the deficit of BMC. The first part of the paper deals with revenue receipts and expenditure of Municipal Corporation. Second section deals with regression result. The last section deals with policy implication and conclusion.

Data and methodology

Data for the study is mainly obtained from the Brihanmumbai Municipal Corporation (BMC) budgets 20007-08 to 2009-10. The data from state government budgets (20007-08 to 2009-10) are also collected. We have taken only the revenue and capital receipts and expenditure incurred by the municipal corporation over the period of four years. Based on these figures, we have calculated the deficit for the future period. The ordinary least square method is used to examine co-related type of expenditure with total expenditure of Municipal Corporation. We have used two regressions to examine inter and intra-sector specific infrastructure investment of BMC.

Receipts of the municipal corporation

Municipal Corporation has higher revenue receipts. The revenue income of the municipal corporation was 66.39 percent in 2007-08. In 2009-10, the revenue income declined up to 56.6 percent. It is mainly because of recession at the global level. But the recession effect was not for longer time. Therefore in 2010-11, revenue income has increased up to 64.15 percent. The loans from the internal sources were 11.50 percent in 2007-08. Over the period of time, the loan from internal sources has grown. In the year 2010-11, it was 17.55 percent. It means that the Brihanmumbai Municipal Corporation is continuously depending on the internal sources for loans. They are more safe and consistent source of finance. The loans from the external sources are declined from 2007-08 to 2010-11.

Table 1 Revenue sources to Brihanmumbai Municipal Corporation (Percent)

Type of Revenue	2007-08	2008-09	2009-10	2010-11
Revenue income	66.39	61.74	56.06	64.15
Loans:				
a. internal	11.50	13.33	16.80	17.55
b. External	1.35	0.44	0.13	0.00
Grants	6.69	8.08	3.71	5.77
withdrawal from special funds	6.07	11.95	12.39	5.70
contribution from development fund	1.28	1.06	0.58	0.70
contribution accumulated surplus	4.99	2.60	5.99	5.70
Other receipts	1.33	0.40	4.34	1.03
Excess expenditure over income	0.39	0.40	-	0.16

Source: Computed from municipal corporation budgets

The grants received by the municipal corporation were 6.69 percent of total receipts in 2007-08. In the year 2009-10, it declined up to 3.71 percent of total receipts. In the year 2010-11, the grants are received as 5.77 percent of total receipts. Withdrawal from the special fund was 5.70 percent of total receipts in 2010-11. It has declined over the period of time. Contribution from development fund was 1.28 percent in 2007-08. It is 0.70 percent in 2010-11 as compared to total receipts. Contribution accumulated surplus was 4.99 percent of total receipts in 2007-08. It has slightly increased up to 5.70 percent to total receipts in 2010-11. Other receipts were only 1.33 percent in 2007-08. But in 2009-10, it has increased up to 4.34 percent of total receipts. In 2010-11, other receipts were only 1 percent of total receipts.

Expenditure on physical infrastructure facilities

Strengthening of civic infrastructure is a first priority of Brihanmumbai Municipal Corporation. In the year 2007-08, expenditure on civic infrastructure was 44.44 percent of total budget of Municipal Corporation. In the year 2010-11, the expenditure on the strengthening of civic infrastructure has declined up to 39.62 percent of total budget. The major decline in capital and revenue expenditure is observed of storm water drainage, road traffic, bridges and sewage disposal. Only the capital investment in water supply projects is announced.

Table 2 Expenditure on infrastructure of BMC (Percent)

Expenditure on sectors	2007-08	2008-09	2009-10	2010-11
Strengthening of civic infrastructure	44.44	46.22	40.61	39.62
Up gradation of social infrastructure and Amenities	18.25	16.40	16.67	18.97
Cleanliness and improvement city environment	8.32	7.78	7.34	8.04
City beautification and creation of places of tourist interest	2.76	1.67	1.69	1.98
Disaster management and improving disaster preparedness	2.35	2.01	1.91	1.72
Improving civic services	1.61	1.35	1.37	0.91
Institutional improvement and reforms	1.86	2.07	1.41	1.41
Social welfare	2.69	2.61	2.15	1.95
Improvement management and maintenance of municipal assets	1.59	1.45	1.86	1.26
Common services and miscellaneous	16.14	18.45	24.21	24.13
Excess expenditure over income	-	-	0.79	-

Source: Explained in table one

Expenditure on up gradation of social infrastructure and amenities was 18.25 percent of total expenditure in 2007-08. In the year 2010-11, it has not changed much and it is observed as 18.96 percent of total expenditure. Central government has given importance to health and education in their budget. Municipal Corporation does not have choice but to keep the expenditure as it is. Therefore Expenditure on up gradation of social infrastructure and amenities has not changed in the recent year. Expenditure on cleanliness and improvement of city environment was 8.32 percent of total expenditure in the year 2007-08. The expenditure is remaining same (8.03 percent) in the year 2010-11. This is mainly because expenditure on sewage waste management is almost same over the study period. Expenditure on city beautification and creation of places of tourist interest was 2.76 percent of total expenditure in the year 2007-08. In the year, 2009-10, the expenditure on city beautification and creation of places of tourist interest has declined up to 1.72 percent to total expenditure. Municipal Corporation has started development of the tourist places in city, zoo, gardens and playgrounds. But such expenditure is very low and it has not above two percent of total expenditure in the year 2010-11. Disaster management and improving disaster preparedness is an important aspect to protect city from natural calamities. Expenditure

on disaster management was 2.35 percent in the year 2007-08. It has continuously declined in the latter years. In the year 2010-11, the expenditure on disaster management and improving disaster preparedness was 1.72 percent of total expenditure. Improving civic services and citizen facilitation was not received the priority in the total expenditure over the period of time. In the year 2010-11, the expenditure has observed as 0.91 percent. Municipal Corporation is providing maximum facilities through internet but the access to all population is very low. Expenditure on institutional improvement and reforms has observed as 1.86 percent of total expenditure in the year 2007-08. It has continuously declined over the period and in the year 2010-11, it has observed as 1.41 percent of total expenditure. Insurance and welfare programs of workers have received less priority in Municipal corporation budget. BMC had 2.68 percent expenditure on social welfare in 2007-08. It has slightly declined in the year 2010-11 and it is observed as 1.95 percent of total expenditure. Property tax payer's welfare scheme has received less priority in budgets. Improvement management and maintenance of municipal assets, the total expenditure was 1.59 percent in 2007-08. In the year 2010-11, it is 1.26 percent of total expenditure. Expenditure on common services and miscellaneous was 16.14 percent of total expenditure in 2007-08. In the year 2010-11, the expenditure on common services and miscellaneous was 24.13 percent. Over the period of time expenditure on common services and miscellaneous has slightly increased.

Revenue receipts of Municipal Corporation:

Revenue receipts are considered as an income for the municipal corporation. Municipal Corporation is always trying to increase its revenue through tax rate and base. For this purposes Municipal Corporation changes laws related to octroi, property tax, water charges, road tariff and license fees etc.

Table 3 Revenue receipts of Municipal Corporation (Percent)

Revenue	2007-08	2008-09	2009-10	2010-11
Octroi (Net)	45.86	43.51	38.37	36.25
Property tax	18.79	19.80	21.87	20.64
Water ,sewerage charges	8.81	7.02	6.74	5.95
Receipt from development plan department	8.77	8.15	8.25	9.49
Grant in aid from government	4.51	3.24	3.50	3.48
Supervision charges	1.17	4.02	5.29	4.97
Solid waste management	1.09	1.01	0.95	0.91
Receipts from roads and bridges	1.00	1.28	1.29	1.71
Receipts from license department	0.75	0.60	0.89	0.78
Receipts from hospitals, and	0.70	0.62	0.66	0.60

medical colleges				
Receipts from markets and Deonar abattoir	0.37	0.41	0.33	0.65
Other receipts	8.06	10.26	11.57	13.77
Excess expenditure over Income	0.12	0.07	0.28	0.34

Source: Explained in table one

Table shows that the octroi contribution was 45.86 percent in the year 2007-08. The octroi for the BMC has not increased during the last four years. In the year 2010-11, the octroi as a percent of total revenue was 36.25 percent. It means various goods which are brought in the town are declined or tax on them is very less. Therefore the contribution of octroi has continuously declined in the municipal budgets over the period of time. But still it is most productive source of revenue for local body (Rath A.2009). As far as property tax is concerned, then it was 18.79 percent to total revenue in 2007-08. But in 2010-11, the property tax rate and base has increased and it is observed as 20.64 percent of total revenue. Over the period of time, city has observed as major transformation from mills to malls. Many builders and common people have purchased land, property and paid the property tax in city. Real estate is a hot issue in Mumbai city. Many politician, businessmen, firms and employed people have invested their funds in real estate. Due to highest returns in short period, maximum investment has get diverted in this sector. Water and sewerage charges were 8.81 percent in 2007-08. In the year 2010-11, water, sewerage charges have declined up to 5.95 percent. It is continuously declined in the municipal budgets. Municipal Corporation is not providing sufficient drinking water in city. Therefore revenue receipts from water supply is low. If water cuts are reduced in future then revenue collection will increase with higher rate. Similarly, sixty percent population in slums do not have sanitation facilities. Therefore sewerage charges are very less in city. The revenue receipt from development plan department was 8.77 percent in the year 2007-08. In the year 2010-11, it has increased up to 9.49 percent as compare to total expenditure. A grant in aid was 4.51 percent in 2007-08. It has declined and it is observed as 3.48 percent in the year 2010-11. The revenue of supervision charges was 1.17 percent of total revenue in the year 2007-08. It has increased up to 5 percent in the year 2010-11. Revenue from solid waste management was 1.09 percent in the year 2007-08. It has declined over the period of time and it is observed as 0.91 percent of total revenue in the year 2010-11. A revenue receipt from the roads and bridges was one percent of total revenue in 2007-08. In the year 2010-11, it has observed as 1.71 percent of total revenue. Number of bridges and roads in the city has increased but Municipal Corporation has not put any user charge on them. Therefore revenue receipts are not increasing. Municipal Corporation gets the revenue from the license department. Licenses are issued for different purposes in the corporation area but the collection from license fees is very low. In the year 2007-08, it was 0.75 percent of total revenue. In the year 2010-11, it has not changed and remained constant at 0.78 percent of total revenue. Municipal Corporation gets fee from the hospitals and medical colleges. The revenue receipts are very low because they are not profit making institutions. In the year, 2007-08, the revenue receipts from hospital and medical colleges were 0.70 percent of total receipts. In the year, 2010-11, it had declined up to 0.60 percent of total revenue. The revenue receipts from the markets and Deonar abattoir is an important source but Municipal Corporation gets less revenue from it. In the year, 2007-08, the revenue receipts from markets and Deonar abattoir is 0.37 percent as compare to total revenue.

In the year 2010-11, it has increased and it is observed as 0.64 percent of total revenue. The other receipts were eight percent in the year 2007-08. It has continuously increased and in the year 2010-11, the other receipts are observed as 13.77 percent of total revenue. Income over the expenditure was 0.12 percent of total receipts in the year 2007-08. It has increased slightly over the period of time. In the year 2010-11, it is 0.34 percent of total revenue.

Revenue expenditure

Municipal Corporation spends on various activities in its jurisdiction. Such expenditure is a continuous expenditure on different items. It is required for smooth functioning of particular department or system. The revenue expenditure is explained in the following table.

Table 4 Revenue expenditure of Municipal Corporation (Percent)

Expenditure	2007-08	2008-09	2009-10	2010-11
Establishment expenses	41.13	40.80	53.14	58.27
Administrative expenses	3.95	4.03	4.53	4.49
Operation and maintenance	24.72	20.59	20.59	18.58
Interest and finance charges	4.87	2.71	1.92	1.28
Program expenses	1.03	0.98	0.96	0.98
Revenue grants, contributions and subsidies	6.14	6.41	6.70	5.84
Provisions write-off	2.00	1.38	0.00	2.19
Transfer of reserve fund	0.00	0.00	2.49	5.08
a. Transfer to capital account	15.23	21.03	3.73	0.00
b. Others	1.53	1.83	3.72	1.84
Less charge to contribution	-0.61	0.23	2.21	1.45

Source: Explained in table one

As far as expenditure of the municipal corporation is concerned, then establishment expenses were only 41.13 percent of total expenses in 2007-08. It has grown up to 58.27 percent in the year 2010-11. The administrative expenses were 3.95 percent as compare to the total expenditure in the year 2007-08. It has grown up to 4.49 percent in the year 2010-11. In order to collect more taxes and collection of record, Municipal Corporation is doing more expenditure on administration. The operation and maintenance expenditure was 24.72 percent in the year 2007-08. It has declined up to 18.58 percent in the year 2010-11. Expenditure as interest and finance charges was 4.87 percent in the year 2007-08. It has declined over the period of time. In the year 2010-11, it has observed as 1.28 percent of total expenditure. Expenditure on program expenses

has not changed over the period of time. It remained same over the period of time. Revenue grants, contribution and subsidies were 6.14 percent in the year 2007-08. It is remaining more or less same and in the year 2010-11, it has observed as 5.84 percent of total expenditure. The other expenditure is more or less remaining same over the period of time. Lastly, the less charge to contribution was 1.45 percent of total expenditure in 2010-11. It has slightly increased after 2007-08.

Table 5 Capital Receipts of Municipal Corporation (Percent)

Capital receipts	2007-08	2008-09	2009-10	2010-11
Internal loan	26.35	26.03	36.49	42.40
External loan	3.09	0.85	0.27	13.93
Grants	15.33	15.78	8.06	1.62
Contribution from development fund	2.94	2.07	1.26	1.00
Sale proceeds of land and buildings	1.23	0.78	4.38	7.90
Contribution from revenue account	23.19	25.38	4.56	16.19
Accumulated Surplus	11.44	5.08	13.01	15.40
Withdraw from special fund	13.91	23.33	26.92	1.49
Other receipts	1.82	0.00	5.05	0.00
Excess of expenditure over income	0.71	0.69	0.00	0.00

Source: Explained in table one

Brihanmumbai Municipal Corporation (BMC) is investing in various capital goods. It gets revenue from various capital goods in Municipal Corporation area. Municipal Corporation has received receipts from the internal loans. It was 42.40 percent in 2010-11. The receipts from external loans were 14 percent of total capital receipts in the year 2010-11. Municipal Corporation received higher grants in 2007-08. It was 15.33 percent of total capital receipts. In the year 2010-11, total grants have observed as only 2 percent of total capital receipts. Contribution of development fund was 2.94 percent in the year 2007-08. In the year 2010-11, it has observed as one percent of total capital receipts. Contribution from revenue account was 23.19 percent of total capital receipts. In the year, 2010-11, it has come down up to 7.90 percent of total capital receipts. Municipal Corporation withdrawn from special fund and it was 13.91

percent of total capital receipts in the year 2007-08. In the year, 2010-11, it has observed as 1.49 percent of total receipts.

Table 6 Capital Expenditure of Municipal Corporation (Percent)

Capital expenditure	2007-08	2008-09	2009-10	2010-11
Traffic operation roads and bridges	17.09	14.95	14.07	14.29
Storm water drains	9.79	17.56	13.99	12.28
Solid Waste management and transport	4.41	3.90	4.18	3.99
Health department	7.38	5.69	4.87	5.07
Water supply	23.97	25.48	25.64	32.98
Sewerage	11.17	8.65	7.06	7.77
Fire brigade and disaster management	3.39	2.67	2.85	2.37
Information technology	2.41	1.84	2.22	1.23
Market and Deonar abattoir	0.99	0.46	0.69	1.22
Repairs to municipal properties and slum improvement	2.62	2.17	3.71	0.98
Repairs to primary school buildings	3.00	2.64	2.40	2.05
Others	13.77	13.98	16.25	15.61
Excess expenditure over income	0.00	0.00	1.52	0.14

Source: Explained in table one

Capital expenditure is mainly done on the capital goods in the municipal corporation. The expenditure on traffic operation, roads and bridges were 17.09 percent in the year 2007-08. It has declined in the year 2010-11 and it is observed as 14.29 percent of total capital expenditure. It means BMC is not spending money on traffic signals and building of roads. Few roads are getting the priority and whole city infrastructure is getting less priority. The storm water drains has received 9.79 percent of total expenditure in the year 2007-08. It has observed as 12.28 percent to total expenditure in the year 2010-11. Mumbai city has storm water drainage facility but it is seventy years old. It has built on the basis of population and weather condition. But over the period of time due to land encroachment, garbage dumping and the old water drainage system is either chocking or its flow has changed. During July 2005 monsoon, Mumbai city gas witnessed major water logging in various wards. Therefore the capital expenditure has increased by the BMC to increase the water drainage. Expenditure on solid waste management and

transport has observed as 4.41 percent of total expenditure and it is almost same over the period of time. Expenditure on health departments has come down during the last four years. It was 7.38 percent in the year 2007-08. In the year 2010-11, it has just observed as 5.07 percent of total capital expenditure. BMC has major hospitals which are located in south Mumbai. BMC is not establishing new hospitals or upgrading the existing hospitals in the municipal corporation area. Capital expenditure on water supply was 23.97 percent in 2007-08. In the year 2010-11, it has increased up to 32.98 percent as compare to total expenditure. Municipal Corporation has announced various water supply projects to reduce the water deficit in city. Therefore the capital expenditure on water supply has increased. There is need to increase further expenditure because water supply projects are less for city population. Expenditure on sewerage was 11.17 percent in the year 2007-08. In the year 2010-11, it has observed as 7.77 percent as compare to total expenditure. It is a responsibility of the BMC to put sewerage line in the city but it is reducing the capital expenditure on sewerage. Mumbai city requires more and modern fire brigades to reach on time at the disaster sites. The casualty may be higher because of high rise buildings, shopping malls and multiplexes, slums, high density of population etc. Municipal Corporation has spent 3.39 percent on the fire brigade and disaster management in the year 2007-08. Such expenditure was observed as 2.37 percent of total expenditure in the year 2010-11. It means capital expenditure on fire brigade is declining then how Municipal Corporation will keep international standards of fire brigade in city. Capital expenditure in information technology has observed as 1.23 percent of total expenditure in the year 2010-11. Investment in the market and Deonar abattoir was 0.99 percent of total capital expenditure in the year 2007-08. In the year 2010-11, it was observed as 1.22 percent of total capital expenditure. Municipal Corporation also repairs the properties in its jurisdiction. In the year 2007-08, total expenditure was 2.62 percent. In the year, 2010-11, the expenditure on the repair of properties and slum improvement has declined up to 0.98 percent of total expenditure. Repairing and maintaining of municipal schools is the responsibility of the municipal corporation. In the year 2007-08, the expenditure on the repair of municipal school was three percent of total expenditure. In the year 2010-11, it was 2.05 percent of total expenditure. It means expenditure on repairing of school buildings in Municipal Corporation area has declined over the period of time. Universal primary and secondary education is a responsibility of BMC but decline in capital expenditure raises the doubt about the education policy of BMC. Other capital expenditure was 13.77 percent in the year 2007-08. In the year 2010-11, the capital expenditure on other items was 15.61 percent as compare to total expenditure.

Regression Results:

In this study, we have used Ordinary Least Square (OLS) regression (Greene W.H. 2003) to examine the co-related type of expenditure with total expenditure of BMC. It is defined as follows.

$$Y_i = b + b_1x_1 + b_2x_2 + b_3x_3 + \dots + e$$

Where

y_i = Dependent variable

x = Independent variable

BMC is financing the public infrastructure and services in the city. Some infrastructure has received more attention whereas some services have received least attention. We have categorized infrastructure in to two parts as inter and intra sector expenditure and regressed it on total expenditure. The results are explained in the following table.

Table 7 Ordinary least square regression result

No.	Type of expenditure		OLS1		OLS2	
			Co-efficient	T test	Co-efficient	T test
1	Strengthening of social infrastructure		-	-	-	-
		Water supply	-	-	2.68* (0.00)	1008.26
2	Up-gradation of social infrastructure and amenities		8.45* (0.00)	8847.43	-	-
		Health	-	-	4.92* (0.13)	35.40
3	Cleanliness and improvement of city environment		-15.20* (0.02)	-	-	-
		Solid waste management	-	6179.44	-2.39* (0.14)	-16.52
4	City beautification and creation of places of Tourist interest		39.38* (0.04)	8947.83	-	-
		Gardens/Playgrounds	-	-	0.21(0.28)	0.76
5	Disaster management and improving disaster preparedness		-0.002 (0.00)	-0.44	-	-
6	Improving civic services and citizen facilitation		6.44* (0.00)	1253.50	-	-
7	Institutional improvement and reforms		-37.61* (0.06)	-	-	-
		Up-gradation of octroi nakas	-	5677.03	3.08** (0.00)	4.58
8	Social welfare		-7.56* (0.02)	-	-	-
		Women and child welfare	-	3714.54	2.43*(0.83)	29.35
10	Improvement , management and maintenance of Municipal assets		7.50* (0.25)	29.87	-	-
11	Common services and miscellaneous activities		-0.51* (0.00)	-	-	-
				2573.08		

Constant	-736* (7123)	-1034.43	-153** (0.32)	-4.68
R ² =0.99 Adj.R ² =0.91 F=25.30, Root MSE=221.9				R ² =0.95 Adj.R ² =0.97 F=42.79 Root MSE=217.6

Notes 1. @Figures in parenthesis shows standard error

2. *Variables significant at 1 percent ** Variables significant at 5 percent.

3. Only significant variables are reported in the table

Strengthening of civic infrastructure is the first priority of the municipal corporation. The expenditure on water supply is positively co-related to total expenditure. It means Municipal Corporation is investing more in water supply projects. Therefore revenue and capital expenditure is positively co-related to water supply. Brihanmumbai Municipal Corporation has inadequate social infrastructure and amenities i.e. education, health, municipal markets, public parking, etc. The investment in the entire social infrastructure is positively co-related and it is statically significant. The health is an important component of the social infrastructure. Expenditure on this component is positively co-related in the city. There are many patients within and across the states coming for treatment. Expenditure on health is a biggest component in social infrastructure. City environment comprises as the sewage waste management, eco-housing, measures to control air pollution. Mumbai Municipal Corporation is not investing positively in such components. Such investment is negatively co-related with total investment and it is statistically significant. The sewage waste has not received attention of the municipal corporation. The investment in sewerage waste management is negatively co-related. In the city, sixty percent of slum population do not have coverage of sanitation facilities and they are depending on public sanitation system. There is need to invest more money in the sewage disposal system. The sewage disposal system is very old and need immediate up gradation. City beautification and creation of places of tourist interest is related to development of playgrounds, zoo improvement, gateway plaza, Powai Lake, Haji Ali beautification etc. The municipal corporation has started investment in the city beautification and creation of places of tourist interest. But Municipal Corporation has not invested much resource in this direction. The regression result is negative and statistically significant.

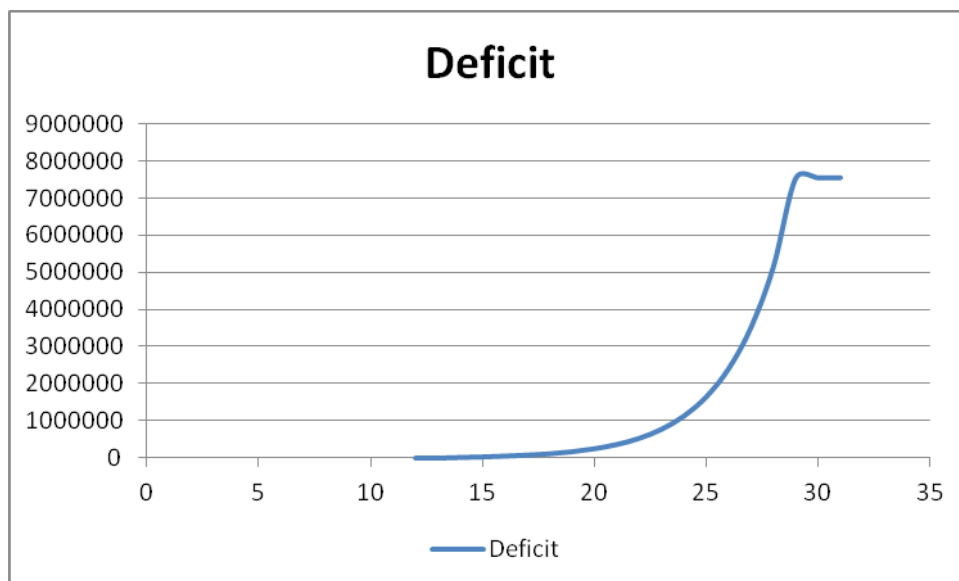
Disaster management has a major component as the fire brigade. But Municipal Corporation has not invested in disaster management. It is negatively co-related with total investment. Mumbai city is surrounded on three sides by sea. Most of the settlements are located near coast, slums, hilly area, open drainage side etc. During monsoon most of the landslides, flooding is reported in city. Entire sea coast of city is required protection. But BMC is reducing the expenditure on disaster management. Improving civic services and citizen's facilities are positively co-related with total expenditure. Citizen facilities are mainly comprises as e-governance and adhar Kendra's. Government is spending on these adhar Kendras and e-government. Institutional improvement and reforms are negatively co-related with total investment. This is mainly because Municipal Corporation is not investing in employee welfare programs, insurance schemes for sewage waste management labour staff. There is no investment on the up gradation of printing press. The investment in up gradation of octroi nakas is positively co-related to total investment. BMC is investing in physical infrastructure and recruiting people

to get maximum revenue from such source. Therefore up gradation of octroi nakas is positively co-related with total investment. Social welfare expenditure is negatively co-related as compare to total expenditure. BMC is not investing adequately in property tax payer's welfare schemes. BMC is spending more on the women and child welfare. It is statistically significant and positively co-related. Investment in improvement of management and maintains of municipal assets are positively co-related to the total investment. BMC is maintaining its assets on regular basis. Common services and miscellaneous activities are negatively co-related to total investment. It means BMC is spending less on the common services and miscellaneous activities.

Resource gap

In the various budgets, BMC is facing the gap between revenue receipts and expenditure. The deficit is always increasing in the future. Due to deficit in current period BMC is facing wider resource gap in future. Money has to get invested in physical infrastructure and services because it is need of future. In the following graph, resource gap is explained.

Graph 1 Deficit in the infrastructure financing (Rs in thousands)



In 2011, the deficit in the municipal corporation budget is Rs.1000000 thousands. At present it is less than one percent of the total budget but it will continuously increase after 2020. There is no provision of increase in the revenue receipts of the municipal corporation. Therefore the resource gap will continuously increase for the future period. It will reach above Rs.7000000 thousands in the year 2030. It is a serious concern for the municipal corporation to finance the physical infrastructure and services in city.

Policy implication and conclusion

Given the global demographic trends, it is inevitable that local governments will have greater responsibilities in the preparation of long term strategies for investment in health, education and infrastructure to reduce poverty and achieve the Millennium Development Goals (Dirie I.2005). BMC is facing a huge problem of economic resources for future period. The resource gap is continuously increasing with rise in population in city. The following important policies are suggested to reduce the resource gap. Government of India and Reserve Bank of India must allow BMC to enter into debt market. BMC can raise money through issuing long term debentures and municipal bonds in capital market. BMC is one of the fastest growing municipal corporations in India. The contribution in terms of economic growth is higher. It is an engine of economic growth for nation. Reserve Bank of India must help BMC in terms of borrowing from various banks. It must either give directive to the existing nationalised banks or create non banking financial institution to finance the infrastructure. It must strengthen the creditworthiness of the municipal corporation. Government of Maharashtra has raised some doubt about the financing pattern of infrastructure and irregularities in municipal corporation budgets. There should be tight norms as far as the expenditure pattern is concerned. It is public money and money should get utilised in a most efficient and wise manner. The local government needs central government permission to borrow (Venkatachalam P. 2009) Government of India must give permission and freedom to municipal corporations to raise the various tax rates. Municipal Corporation must increase the tax rate and base of various taxes in its jurisdiction. Taxes on outside vehicles and user charges on infrastructure for individuals in municipal corporation area will provide more resources to the municipal corporation. At this movement innovative ideas are required for maximum revenue receipts. If the service provision is far from satisfactory level then Municipal Corporation should use market forces as an important policy option (Mitra N.2002). Municipal Corporation must allow the public private partnership in its various infrastructure related projects (Vaidya C.2009). Private sector has money and it should get utilised in a most efficient manner. Municipal Corporation should do the close supervision in PPP programs. It will improve the financial condition and reduce the fiscal imbalance of Municipal Corporation. Good preparation and delivery of urban infrastructure and services by Municipal Corporation can enhance liveability for residents and productivity for business (World Bank 2009). But Municipal Corporation needs desire and ambition to provide the municipal services at grass root level.

Bibliography

- Dirie I. (2005) "Municipal finance: Innovative resourcing for municipal infrastructure and service provision" A report prepared for commonwealth local government forum in co-operation with ComHabitat.
- Greene, William H. (2003): "Econometric Analysis" fifth edition, Pearson Education Private, Ltd, Indian branch, Delhi, India.
- Kitchen H.M and Slack Enid (2003) "Special study: Finance options for municipal governments" Canadian Tax Journal, Vol.51 No.6 PP 2215-76.
- Mitra Nita (2002) "Public private partnership in local self governance" Economic and political weekly, November 30, 2002, PP 4777- 4780

- Sekhar Sita and Bidarkar Smita (1999) "Municipal budgets in India: Comparison across five cities" Economic and political weekly, May 15, 1999, PP 1202-1208.
- Rode Sanjay (2008) "Public private partnership in drinking water supply of Municipal Corporation in Greater Mumbai" paper submitted to esocial sciences, December 2008.
- Rath Anita (2009) "Octroi-A tax in a time warp: What does its removal imply for Greater Mumbai? Economic and political weekly Vol. XLIV. No.25 PP 86-93.
- Sridhar K.S. (2007) "Reforming in developing countries: Evidence from a case study in India" Economic and political weekly, August 18, 2007, PP 3404-3413.
- Vaidya Chetan (2009) "Urban issues, reforms and way forward in India" Working paper no.4 Department of economic affairs, Ministry of finance, Government of India.
- The World Bank (2009) "Improving municipal management for cities to succeed: An IEG special study, ISBN 978-0-8213-80444 (e-book), Washington, D.C.
- Venkatachalam P. (2009) "An overview of municipal finance system in DAR-ES-SALAAM, Tanzania" Working paper number 10, Crisis states research centre , DESTIN , Development Studies Institute , Houghton street, London, WC2A 2AE.